

New Basis, Inc.  
2626 Kansas Ave.  
Riverside, CA 92507  
ID: 40806

## **EQUIPMENT DESCRIPTION**

### **A/N 554835: (Modification, current permit no. G26072, A/N 515594): - P/C**

MODIFICATION TO AIR POLLUTION CONTROL SYSTEM UNDER P/O G26072 (A/N 515594)  
CONSISTING OF:

1. REGENERATIVE THERMAL OXIDIZER, ADWEST, MODEL NO. RETOX 12.0RTO95, 9'-2" W. X 24'-0" L. X 10'-6" H., 12,000 SCFM CAPACITY, WITH ONE 3,434,000 BTU/HR NATURAL GAS-FIRED MAXON KINEMAX 4G BURNER, ONE 7.5 HP COMBUSTION AIR BLOWER AND TWO CERAMIC BEDS, EACH WITH 13,200 LBS OF CERAMIC MEDIA.
2. SPRAY BOOTH, SPRAYLINE, MODEL NO. SPRAYLINE 35, AUTOMOTIVE TYPE, 28'-0" W. X 35'-0" L. X 10'-0" H., WITH FORTY-TWO 20" X 20" X 2" FIRST-STAGE EXHAUST FILTERS, FORTY-TWO 20" X 20" X 12" SECOND-STAGE EXHAUST FILTERS AND ONE 5 HP EXHAUST FAN.
3. EXHAUST FILTER SERVING PCBM1 AND PCBM2 WITH A ¼ HP EXHAUST FAN.
4. EXHAUST SYSTEM CONSISTING OF ONE 50 HP EXHAUST BLOWER VENTING ONE SPRAY BOOTH AND FOUR ~~TWO~~ POLYMER CONCRETE BATCH MIXERS (PCBM1, PCBM2, PCBM3 AND PCBM4).

BY THE VENTING OF TWO ADDITIONAL NEW POLYMER CONCRETE BATCH MIXERS (PCBM3 AND PCBM4) FOR A TOTAL OF FOUR POLYMER CONCRETE BATCH MIXERS, AND THE ADDITION OF:

5. BAGHOUSE, WAM, MODEL NO. FNS.2.J.12, EIGHT 5.25" DIA/ X 36" H. BAG FILTERS, 132 SQ. FT. TOTAL FILTER AREA, VENTING PCBM3 AND PCBM4, WITH A 3 HP FAN AND PULSE JET CLEANING.
6. DUST COLLECTOR, DONALDSON TORIT, MODEL NO. VS-1200, PULSE JET CLEANING, WITH ONE 17" DIA. X 20" L. CARTRIDGE-TYPE FILTER, 135 SQ. FT. TOTAL FILTER AREA, AND ONE 24" X 18" X 12" HEPA FILTER VENTING POLYMER CONCRETE BATCH MIXER 1 (PCBM1) [previously under A/N 484033 (F98572)].
7. EXHAUST SYSTEM WITH A 3 HP EXHAUST FAN VENTING ~~A POLYESTER RESIN MIXER~~ POLYMER CONCRETE BATCH MIXER 1 (PCBM1) [previously under A/N 484033 (F98572)].

*(Consolidate dust collector under A/N 484033 (F98572) with this APC permit unit, and change permit conditions)*

**APPLICATION PROCESSING AND CALCULATION****A/N 554836 (New Construction): - P/C**

MIXER, PCBM3, POLYMER CONCRETE BATCH MIXER, 6'-0" DIA. X 8'-0" H., 1,700 GALLON CAPACITY.

**A/N 554837 (New Construction): - P/C**

MIXER, PCBM4, POLYMER CONCRETE BATCH MIXER, 6'-0" DIA. X 8'-0" H., 1,700 GALLON CAPACITY.

**A/N 554838 (New Const.): - Cancel, include with the APC permit unit, A/N 554835**

BAGHOUSE, WAM, MODEL NO. FNS.2.J.12, EIGHT 5.25" DIA. X 36" H. BAG FILTERS, 132 SQ. FT. TOTAL FILTER AREA, VENTING PCBM3 AND PCBM4, WITH A 3 HP FAN AND PULSE JET CLEANING.

**A/N 554839 (New Construction): - P/C**

WEIGH HOPPER, WH1, 5'-8" W. X 5'-8" . X 8'-6" H., 165 CU FT CAPACITY, VENTED TO BIN VENT, CON-E-CO, MODEL NO. 14-23, WITH FOURTEEN 4.5" DIA. X 16" H. BAG FILTERS, 23 SQ. FT. TOTAL FILTER AREA, AND REVERSE AIR CLEANING.

**A/N 554841: (Administrative change, current permit no. G12966, A/N 507895) - P/O**

STORAGE SILO, NO. S1, CALCIUM CARBONATE, 12'-0" DIA. X 13'-8" H. (OVERALL), 6,204 GALLON CAPACITY VENTED TO BIN VENT B1, DIVERSIFIED STORAGE SYSTEMS, MODEL NO. AIRMAX 150, WITH EIGHTEEN BAG FILTERS, 150 SQ. FT. TOTAL FILTER AREA, AND A MECHANICAL SHAKER.

*(Consolidate bin vent under A/N 507891 (P/O G12963) with this silo permit unit.)*

**A/N 554842 (New Construction): - P/C**

STORAGE SILO, NO. 3, CALCIUM CARBONATE, 8'-6" DIA. X 37'-10" H. (OVERALL), 10,472 GALLON CAPACITY, VENTED TO BIN VENT, WAM SILOTOP RO1 SERIES, WITH SEVEN 16" W. X 36" H. CARTRIDGE FILTERS, 264 SQ. FT. TOTAL FILTER AREA, AND REVERSE AIR CLEANING.

**A/N 554843 (New Construction): - P/C**

STORAGE SILO, NO. 5, GLASS BUBBLES, 8'-6" DIA. X 37'-10" H. (OVERALL), 10,472 GALLON CAPACITY VENTED TO A BIN VENT, WAM SILOTOP RO1 SERIES, WITH SEVEN 16" W. X 36" H. CARTRIDGE FILTERS, 264 SQ. FT. TOTAL FILTER AREA, AND REVERSE AIR CLEANING.

**A/N 554844 (New Const.): - Cancel – include with Silo No. 3 permit, A/N 554842**

BIN VENT, VENTING NEW SILO No. 3

**A/N 554845 (New Const.): - Cancel - include with Silo No. 5 permit, A/N 554843**

BIN VENT, VENTING NEW SILO No. 5

**A/N 554846 (Modification, current permit no. G17145, A/N 530319): - P/C**

MODIFICATION TO STORAGE SILO NO. 1 CONSISTING OF:

1. STORAGE SILO, NO. 1, CALCIUM CARBONATE/SAND, 12'-0" DIA. X 13'-8" H. (OVERALL), 6,204 GALLON CAPACITY.

BY THE ADDITION OF A SCREW CONVEYOR TO THE NEW WEIGH HOPPER WH1, TO INCLUDE THE BIN VENT UNDER P/O G17311 AS PART OF THIS PERMIT UNIT, AND TO CHANGE PERMIT CONDITION TO INCREASE THROUGHPUT TO 2,860,000 LB/MO:

2. BIN VENT, MAC EQUIPMENT, MODEL NO. 2M2F4, WITH FOUR 14" DIA. X 26" L. CARTRIDGE FILTERS, 1.06 SQ. FT. TOTAL FILTER AREA, AND A MECHANICAL SHAKER, VENTING SILOS 1, 2 AND 4.
3. ENCLOSED SCREW CONVEYOR TO WEIGH HOPPER WH1.

**A/N 554847 (Modification, current permit no. G17146, A/N 530320): - P/C**

MODIFICATION TO STORAGE SILO NO. 2 CONSISTING OF:

1. STORAGE SILO, NO. 2, CALCIUM CARBONATE/SAND, 12'-0" DIA. X 13'-8" H. (OVERALL), 6,204 GALLON CAPACITY.

BY THE ADDITION OF A SCREW CONVEYOR TO THE NEW WEIGH HOPPER WH1, TO INCLUDE THE BIN VENT UNDER P/O G17311 AS PART OF THIS PERMIT UNIT, AND TO CHANGE PERMIT CONDITION TO INCREASE THROUGHPUT TO 2,860,000 LB/MO:

2. BIN VENT, MAC EQUIPMENT, MODEL NO. 2M2F4, WITH FOUR 14" DIA. X 26" L. CARTRIDGE FILTERS, 1.06 SQ. FT. TOTAL FILTER AREA, AND A MECHANICAL SHAKER, VENTING SILOS 1, 2 AND 4.
3. ENCLOSED SCREW CONVEYOR TO WEIGH HOPPER WH1.

**A/N 554848 (Modification, current permit no. G17147, A/N 530321): - P/C**

MODIFICATION TO STORAGE SILO NO. 4 ~~3~~ CONSISTING OF:

1. STORAGE SILO, NO. 4 ~~3~~, CALCIUM CARBONATE/SAND, 12'-0" DIA. X 13'-8" H. (OVERALL), 6,204 GALLON CAPACITY

BY RENUMBERING THE SILO FROM NO. 3 TO NO. 4, BY THE ADDITION OF A SCREW CONVEYOR TO THE NEW WEIGH HOPPER WH1, TO INCLUDE THE BIN VENT UNDER P/O G17311 AS PART OF THIS PERMIT UNIT, AND TO CHANGE PERMIT CONDITION TO INCREASE THROUGHPUT : TO 2,860,000 LB/MO

2. BIN VENT, MAC EQUIPMENT, MODEL NO. 2M2F4, WITH FOUR 14" DIA. X 26" L. CARTRIDGE FILTERS, 1.06 SQ. FT. TOTAL FILTER AREA, AND A MECHANICAL SHAKER, VENTING SILOS 1, 2 AND 4.
3. ENCLOSED SCREW CONVEYOR TO WEIGH HOPPER WH1

## APPLICATION PROCESSING AND CALCULATION

**A/N 554849 (New Construction): - P/C**

STORAGE TANK, NO. 2, RESIN, VERTICAL FIXED ROOF, 11'-0" DIA. X 10'-0" H., 6,463 GALLON CAPACITY.

**A/N 554850 (New Construction): - P/C**

STORAGE TANK, NO. 3, RESIN, VERTICAL FIXED ROOF, 11'-0" DIA. X 10'-0" H., 6,463 GALLON CAPACITY.

**A/N 554851 (Title V Permit Revision)**

TV SIGNIFICANT PERMIT REVISION PLAN

**A/N 556160: (Change of condition, current permit no. G12960, A/N 505170): - P/O**

MIXER, PCBM2, POLYMER CONCRETE BATCH MIXER, 4'-0" DIA. X 3'-4" H., 300 GALLON CAPACITY, WITH ONE 7.5 HP MOTOR.

*(Change condition 7 to update the VOC emission factor from loading/mixing based on source test from 0.0053 lb VOC/lb resin to 0.0034 lb VOC/lb resin and include (1-0.95) to account for mixer being vented to RTO.)*

**A/N 556161: (Administrative change, current permit no. G12964, A/N 507892 and G12961, A/N 507889): - P/O**

STORAGE SILO, NO. S3, CALCIUM CARBONATE, 12'-0" DIA. X 17'-0" H. (OVERALL), 7,473 GALLON CAPACITY VENTED TO BIN VENT B3, WITH THIRTY SIX ~~EIGHTEEN~~ BAG FILTERS, 127 SQ. FT. TOTAL FILTER AREA, AND A MECHANICAL SHAKER.

*(Consolidate bin vent B3 under P/O G12961 with silo S3 and correct number of filters)*

**A/N 556162: (Administrative change, current permit no. G12965, A/N 507894 and G12962, A/N 507890): - P/O**

STORAGE SILO, NO. S2, SAND, 12'-0" DIA. X 13'-8" H. (OVERALL), 6,204 GALLON CAPACITY VENTED TO BIN VENT B2, WITH THIRTY SIX ~~EIGHTEEN~~ BAG FILTERS, 127 SQ. FT. TOTAL FILTER AREA, AND A MECHANICAL SHAKER.

*(Consolidate bin vent B2 under P/O G12962 with silo S2 and correct number of filters)*

**A/N 484033 (F98572) – Inactivate P/O, include with the APC permit unit, A/N 554835**

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. DUST COLLECTOR, DONALDSON TORIT, MODEL NO. VS-1200, PULSE JET CLEANING, WITH ONE 17" DIA. X 20" L. CARTRIDGE-TYPE FILTER, 135 SQ. FT. TOTAL FILTER AREA, AND ONE 24" X 18" X 12" HEPA FILTER.
2. EXHAUST SYTEM WITH A 3 HP EXHAUST FAN VENTING ~~A POLYESTER RESIN MIXER~~  
POLYMER CONCRETE BATCH MIXER 1 (PCBM1)

***A/N 530322 (G17311) – Inactivate P/O, include with 3 Silos, A/Ns 554846-48***

*BAGHOUSE, MAC EQUIPMENT, MODEL NO. 2M2F4, FOUR 14" DIA. X 26" L. CARTRIDGE FILTERS, 1.06 SQ. FT. TOTAL FILTER AREA, WITH A MECHANICAL SHAKER, VENTING SILO NOS. 1, 2 AND 3.*

***A/N 507889 (G12961) – Inactivate P/O, include with Silo S3, A/N 556161***

*BAGHOUSE, B3, EIGHTEEN BAG FILTERS, 127 SQ. FT. TOTAL FILTER AREA VENTING SILO NO. 3, WITH A MECHANICAL SHAKER.*

***A/N 507890 (G12962) – Inactivate P/O, include with Silo S2, A/N 556162***

*BAGHOUSE, B2, EIGHTEEN BAG FILTERS, 127 SQ. FT. TOTAL FILTER AREA VENTING SILO NO. 2, WITH A MECHANICAL SHAKER.*

***A/N 507891 (G12963) – Inactivate P/O, include with Silo S1, A/N 554841***

*BAGHOUSE, B1, DIVERSIFIED STORAGE SYSTEMS, MODEL NO. AIRMAX 150, EIGHTEEN BAG FILTERS, 150 SQ. FT. TOTAL FILTER AREA VENTING SILO NO. 1, WITH A MECHANICAL SHAKER.*

**BACKGROUND**

New Basis submitted applications to permit a new polymer concrete mixing operation that consists of two polymer concrete batch mixers (PCBM 3 and 4), one baghouse, two storage silos (3 and 5) each with a bin vent, two resin storage tanks and one weigh hopper with a bin vent. The new mixers will be vented to the new baghouse then to the existing regenerative thermal oxidizer (RTO). New Basis submitted applications to modify the RTO, as well as, six existing storage silos and an application to update the permit conditions for an existing mixer (PCBM2). The six existing storage silos that are modified are all vented to bin vents that have been permitted separately. Current policy on permit unit boundaries is to include the bin vent with the storage silo, therefore the modification to these silo permits is to include the bin vent as part of the silo permit unit description and inactivate the bin vent permits. The applicant also requested to remove the VOC emission cap of 900 lb/mo on the APC system permit since the equipment being vented to it comply with BACT for VOC by the RTO, and a Rule 212 public notice is already required for this project. See table below for complete description of changes.

The new mixing system will operate in a similar fashion as their existing mixers PCBM1 & 2 with the exception that glass bubbles (spheres) will be added to the batch. The glass spheres are approximately 65 microns in diameter and will add buoyancy to the final product. The following table summarizes the applications that were submitted:

## Engineering and Compliance

Appl. no. Below  
 Processed by Todd Iwata  
 Checked by SMKE  
 Date: 5/30/2014

## APPLICATION PROCESSING AND CALCULATION

## Application Summary

A/N	Equipment	Permit	Application Type
554835	APC – RTO+S/B+Exhaust filter+baghouse+dust collector	P/C	Modification (vent new PCBM3 & 4 to RTO, add new baghouse, consolidate dust collector, change permit condition to remove 900 lb/mo VOC equipment cap)
554836	Mixer (PCBM3)	P/C	New Construction
554837	Mixer (PCBM4)	P/C	New Construction
554839	Weigh hopper w/bin vent	P/C	New Construction
554841	Silo S1 w/bin vent B1	P/O	Administrative change (add bin vent under P/O G12963 to silo permit and inactivate bin vent permit)
554842	Silo 3 w/WAM bin vent	P/C	New Construction
554843	Silo 5 w/WAM bin vent	P/C	New Construction
554846	Silo 1 w/MAC bin vent	P/C	Modification (add enclosed screw conveyor from silo to weigh hopper, increase throughput to 2,860,000 lb/mon, add common bin vent under P/O G17311 and inactivate bin vent permit)
554847	Silo 2 w/MAC bin vent	P/C	Modification (add enclosed screw conveyor from silo to weigh hopper, increase throughput to 2,860,000 lb/mon, add common bin vent under P/O G17311 and inactivate bin vent permit)
554848	Silo 4 w/MAC bin vent	P/C	Modification (add enclosed screw conveyor from silo to weigh hopper, increase throughput to 2,860,000 lb/mon, add common bin vent under P/O G17311, inactivate bin vent permit & rename silo "4")
554849	Resin Storage tank 2	P/C	New Construction
554850	Resin Storage tank 3	P/C	New Construction
554851	Title V permit revision	-	Significant permit revision
556160	Mixer (PCBM2)	P/O	Change of condition (update loading/mixing emission factor from 0.0053 to 0.0034 lb VOC/lb resin based on source test, and include 95% control efficiency for venting to RTO)
556161	Silo S3 w/bin vent B3	P/O	Administrative change (change number of exhaust filters, add bin vent and inactivate bin vent permit G12961)
556162	Silo S2 w/bin vent B2	P/O	Administrative change (change number of exhaust filters, add bin vent and inactivate bin vent permit G12962)
554838	Baghouse for PCBM3 and 4	Cancel	Include with A/N 554835 for APC System
554844	Bin Vent for Silo 3	Cancel	Include with A/N 554842 for Silo 3
554845	Bin Vent for Silo 5	Cancel	Include with A/N 554843 for Silo 5

## APPLICATION PROCESSING AND CALCULATION

*P/Os to be Inactivated & Removed from Section D*

<i>A/N</i>	<i>P/O</i>	<i>Equipment</i>	<i>Reason</i>
505170	G12960	Mixer PCBM2	Superseded by A/N 556160 for C/C to update VOC emission factor for loading/mixing
507892	G12964	Silo S3	Superseded by A/N 556161 to include Bin Vent B3 and correct number of filters
507889	G12961	Baghouse (Bin Vent B3) venting Silo S3	Included with Silo S3 permit unit A/N 556161
507890	G12962	Baghouse (Bin Vent B2) venting Silo S2	Included with Silo S2 permit unit A/N 556162
507891	G12963	Baghouse (Bin Vent B1) venting Silo S1	Included with Silo S1 permit unit A/N 554841
507894	G12965	Silo S2	Superseded by A/N 556162 to include Bin Vent B2
507895	G12966	Silo S1	Superseded by A/N 554841 to include Bin Vent B1
484033	F98572*	Dust Collector + HEPA venting Mixer PCBM1	Included with APC permit unit A/N 554835
515594	G26072*	APC System – RTO, S/B, baghouse & dust collector	Superseded by A/N 554835 for modification
530319	G17145*	Silo 1	Superseded by A/N 554846 for modification
531320	G17146*	Silo 2	Superseded by A/N 554847 for modification
530321	G17147*	Silo 3	Superseded by A/N 554848 for modification
530322	G17311*	MAC Equip. Baghouse (Bin Vent) venting Silos 1, 2 & 3	Included with Silo 1, 2 & 3 permits A/Ns 554846-48

\* will be inactivated after modifications in P/Cs of subsequent applications are completed

New Basis is a Title V facility. A Title V renewal permit was issued to this facility on 11/29/2011. New Basis has proposed to revise their Title V permit by adding two mixers, two storage silos, two resin storage tanks, and one weigh hopper; by modifying a regenerative thermal oxidizer and six storage silos; and by changing permit conditions for a mixer. The permit revision is considered as a “significant permit revision” to the Title V renewal permit, as described in Regulation XXX evaluation.

The facility was last inspected on 8/6/2013. Within the last two years, the facility received two N/Cs to (1) provide RTO temperature logs and (2) submit Form 500-SAM and 500-RO. They also received one NOV during the same period for failing to operate and maintain a continuous temperature measuring and recording device for the RTO. The facility is currently operating in compliance.

## **PROCESS DESCRIPTION**

New Basis manufactures polymer concrete underground enclosures and lids used to house telephone, power and TV cables as well as, water/turf/irrigation piping and valves. The enclosures are sized from 3" W. x 4" L. x 6" D. to 36" W. x 48" L. x 48" D. The enclosures are made by applying fiberglass resins to molds. The resins are applied to the molds using bristle brushes and flow coater guns inside a spray booth. The booth is configured as a permanent total enclosure and is vented to the regenerative thermal oxidizer.

Some enclosures and lids are made using polymer concrete which is comprised of sand, gravel, calcium carbonate, polyester resin and a small amount of pigment. Existing polymer concrete batch mixers (PCBM1 and 2) are used to mix the materials and after mixing is complete, methyl ethyl ketone peroxide (MEKP) is added to the mixture and then poured into molds. The mixture takes about one hour to cure in the molds.

The new polymer concrete batch mixers (PCBM3 and 4) will be used to make a different concrete product in which glass bubbles will be mixed with resin, calcium carbonate and sand. The glass bubbles (65 microns in diameter) will add buoyancy to the enclosures making them suitable for floating-on-water applications. A batch recipe will be 51% sand, 27% calcium carbonate, 21.5% resin and 0.5% glass bubbles. Total material throughput will be 300,000 lb/day (PCBM3) and 230,000 lb/day (PCBM4). PCBM3 will be used for mixing materials on-site and loading the mixed polymer concrete on trucks for delivery to clients, whereas PCBM4 will be used for mixing material on-site (MEKP added to initiate resin) and for molding operations at the facility. The mixers will be vented to a new baghouse to control particulate emissions followed by the existing RTO to control VOC emissions. The molding and de-molding operation will be conducted within the building but will not be vented to the RTO.

The RTO was designed to handle a flow rate up to 12,000 ft<sup>3</sup>/min. The spray booth and mixers PCBM1 and 2 currently vent to the RTO (the mixers are covered and vented). Flow measurements were taken in several ducts serving the RTO. Flow from the spray booth (30" duct dia.) was measured as 7,000 ft<sup>3</sup>/min, flow from PCBM1 (12" duct dia.) was 380 ft<sup>3</sup>/min and flow from PCBM2 (6" duct dia.) was 58 ft<sup>3</sup>/min. PCBM3 and 4 will be covered, ducted together (6" duct dia.) and connected with the duct that is serving PCBM2. The company estimates that the flow from PCBM3 and 4 will be 58 ft<sup>3</sup>/min per each duct, total flow entering the RTO will be 7,554 ft<sup>3</sup>/min (7,000 + 380 + 58 + 58 + 58) which is below the total rating for the RTO.

New Basis operates under a facility VOC cap of 5,133 lb/month (approximately 171 lb/day). They will operate the new equipment under this cap so there won't be a VOC emission increase from this project. The company operates up to 16 hr/day, 6 day/wk and 51 wk/yr.



## **EMISSION ESTIMATES**

### **A/N 554836 (PCBM3, new construction) & 554837 (PCBM4, new construction):**

#### **VOC Emissions:**

VOC emissions are generated from the resin during: (1) loading and mixing of the mixer and (2) molding and demolding of the part (enclosure or lid). For PCBM1 and 2, a loading/mixing emission factor was determined from a source test and a molding/demolding factor was derived from a source test performed at another facility with a similar resin operation. The

loading/mixing emission factor is further reduced by 95% (RTO overall control efficiency requirement) since the mixers will be vented to the RTO. A source test will be required to determine a loading/mixing emission factor for PCBM3 and 4. Preliminary emission estimates are made using the PCBM1 and 2 emission factors.

Total emissions = loading/mixing + molding/demolding

Loading/mixing emission factor = 0.0034 lb VOC/lb resin

Molding/demolding emission factor = 0.0023 lb VOC/lb resin

#### **PCBM3 (loading/mixing only):**

Maximum material throughput = 300,000 lb/day

Resin content = 21.5%

Maximum resin throughput = 300,000 lb/day \* 0.215 = 64,500 lb/day

Controlled daily emissions = 64,500 lb/day \* 0.0034 \* (1 - 0.95) = 10.97 lb/day

Controlled hourly emissions = 10.97 lb/day ÷ 16 hr/day = 0.69 lb/hr

#### **PCBM4 (loading/mixing and molding/demolding):**

Maximum material throughput = 230,000 lb/day

Resin content = 21.5%

Maximum resin throughput = 230,000 lb/day \* 0.215 = 49,450 lb/day

Daily emissions = [49,450 lb/day \* 0.0034 \* (1 - 0.95)] + [49,450 lb/day \* 0.0023]  
= 122.14 lb/day

Hourly emissions = 122.14 lb/day ÷ 16 hr/day = 7.63 lb/hr

#### **PM<sub>10</sub> Emissions:**

PM<sub>10</sub> emissions are based on emission factors from EPA AP-42 Table 11.12-2, mixer loading.

Uncontrolled emission factor = 0.156 lb PM<sub>10</sub>/ton of material

Bin Vent Control efficiency = 99%

Dry material content = 78.5%

**PCBM3:**

Maximum material throughput = 300,000 lb/day (150 ton/day)

Uncontrolled daily PM<sub>10</sub> emissions = 150 ton/day \* 0.156 lb/ton \* 0.785 = 18.4 lb/day

Uncontrolled hourly PM<sub>10</sub> emissions = 18.4 lb/day ÷ 16 hr/day = 1.15 lb/hr

Controlled daily PM<sub>10</sub> emissions = 18.4 lb/day \* (1 - 0.99) = 0.18 lb/day

Controlled hourly PM<sub>10</sub> emissions = 0.18 lb/day ÷ 16 hr/day = 0.011 lb/hr

**PCBM4:**

Maximum material throughput = 230,000 lb/day (115 ton/day)

Uncontrolled daily PM<sub>10</sub> emissions = 115 ton/day \* 0.156 lb/ton \* 0.785 = 10.8 lb/day

Uncontrolled hourly PM<sub>10</sub> emissions = 10.8 lb/day ÷ 16 hr/day = 0.68 lb/hr

Controlled daily PM<sub>10</sub> emissions = 10.8 lb/day \* (1 - 0.99) = 0.11 lb/day

Controlled hourly PM<sub>10</sub> emissions = 0.11 lb/day ÷ 16 hr/day = 0.007 lb/hr

**A/N 554839 (weigh hopper, new construction):**

Maximum material throughput is 416,100 lb/day (208.05 ton/day). PM<sub>10</sub> emissions are based on 0.0028 lb PM<sub>10</sub>/ton of material (EPA AP-42 Table 11.12-2, weigh hopper loading).

Bin Vent Control efficiency = 99%

Uncontrolled daily PM<sub>10</sub> emissions = 208.05 ton/day \* 0.0028 lb/ton = 0.58 lb/day

Uncontrolled hourly PM<sub>10</sub> emissions = 0.58 lb/day ÷ 16 hr/day = 0.036 lb/hr

Controlled daily PM<sub>10</sub> emissions = 0.58 lb/day \* (1 - 0.99) = 0.006 lb/day

Controlled hourly PM<sub>10</sub> emissions = 0.006 lb/day ÷ 16 hr/day = 0.00038 lb/hr

**A/N 554842 (storage silo 3, calcium carbonate, new construction):**

Maximum material throughput is 4,900,000 lb/mon (81.7 ton/day average) from applicant. For worst case emissions, the maximum material throughput in a day is based on the silo capacity of 10,472 gallons, assuming the silo is empty and filled to capacity in one day. Density of calcium carbonate is 22.6 lb/gal so maximum throughput is 236,667 lbs CaCO<sub>3</sub> in any one day (118.3 tons). PM<sub>10</sub> emissions are based on emission factors from EPA AP-42 Table 11.12-2, cement unloading to silo.

Uncontrolled emission factor = 0.47 lb PM<sub>10</sub>/ton of material

Bin Vent Control efficiency = 99%

Uncontrolled daily PM<sub>10</sub> emissions = 118.3 ton/day \* 0.47 lb/ton = 55.6 lb/day

Uncontrolled hourly PM<sub>10</sub> emissions = 55.6 lb/day ÷ 16 hr/day = 3.48 lb/hr

Controlled daily PM<sub>10</sub> emissions = 55.6 lb/day \* (1 - 0.99) = 0.56 lb/day

Controlled hourly PM<sub>10</sub> emissions = 0.560 lb/day ÷ 16 hr/day = 0.035 lb/hr

30-day ave = 81.7 tons/day \* 0.47 lb/ton \* (1-0.99) = 0.38 lb/day

**A/N 554843 (storage silo 5, glass bubbles, new construction):**

Maximum material throughput is 53,000 lb/mon (0.88 ton/day average) from applicant. For worst case emissions, the maximum material throughput in a day is based on the silo capacity of 10,472 gallons, assuming the silo is empty and filled to capacity in one day. Density of glass bubbles is 5 lb/gal so maximum throughput is 52,360 lbs glass bubbles in any one day (26.2 tons). PM<sub>10</sub> emissions are based on 0.0033 lb PM<sub>10</sub>/ton of material (EPA AP-42, Table 11.12-2, aggregate transfer).

Uncontrolled emission factor = 0.0033 lb PM<sub>10</sub>/ton of material

Bin Vent Control efficiency = 99%

Uncontrolled daily PM<sub>10</sub> emissions = 26.2 ton/day \* 0.0033 lb/ton = 0.0865 lb/day

Uncontrolled hourly PM<sub>10</sub> emissions = 0.0865 lb/day ÷ 16 hr/day = 0.0054 lb/hr

Controlled daily PM<sub>10</sub> emissions = 0.0054 lb/day \* (1 - 0.99) = 5.4E-05 lb/day

Controlled hourly PM<sub>10</sub> emissions = 5.4E-05 lb/day ÷ 16 hr/day = 3.4E-06 lb/hr

30-day ave = 0.88 tons/day \* 0.0033 lb/ton \* (1-0.99) = 3.0E-05 lb/day

**A/N 554846, 554847 & 554848 (storage silos 1, 2 & 4, calcium carbonate/sand, mod.-C/C):**

Maximum material throughput for each silo will be increased to 2,860,000 lb/mon (47.7 ton/day). The maximum material throughput in a day is based on the silo capacity of 6,204 gallons, assuming the silo is empty and filled to capacity in one day. Use density of calcium carbonate (since higher than sand) of 22.6 lb/gal, so maximum throughput is 140,210 lbs CaCO<sub>3</sub> in any one day (70.1 tons). PM<sub>10</sub> emissions are based on emission factors from EPA AP-42 Table 11.12-2, cement unloading to silo.

Uncontrolled emission factor = 0.47 lb PM<sub>10</sub>/ton of material

Bin Vent Control efficiency = 99%

Uncontrolled daily PM<sub>10</sub> emissions = 70.1 ton/day x 0.47 lb/ton = 32.9 lb/day/silo

Uncontrolled hourly PM<sub>10</sub> emissions = 32.9 lb/day ÷ 16 hr/day = 2.1 lb/hr/silo

Controlled daily PM<sub>10</sub> emissions = 32.9 lb/day \* (1 - 0.99) = 0.33 lb/day/silo

Controlled hourly PM<sub>10</sub> emissions = 0.33 lb/day ÷ 16 hr/day = 0.021 lb/hr/silo

30-day ave = 47.7 tons/day \* 0.47 lb/ton \* (1-0.99) = 0.22 lb/day

Previous controlled daily PM<sub>10</sub> emissions = 0.06 lb/day/silo

PM<sub>10</sub> emission increase = 0.22 lb/day/silo – 0.06 lb/day/silo = 0.16 lb/day/silo increase

**A/N 554849 & 554850 (resin storage tanks, new construction):**

VOC emissions from the storage tanks are determined using AQMD's "Supplemental Instructions for Liquid Organic Storage Tanks and References" (Dec. 2011) for small liquid storage tanks. Small tanks are those with a capacity of less than 10,000 gallons and operated at ambient temperature and pressure.

## Engineering and Compliance

Appl. no. Below  
 Processed by Todd Iwata  
 Checked by SMKE  
 Date: 5/30/2014

## APPLICATION PROCESSING AND CALCULATION

Monthly throughput per tank = 54,661 gal/mon

Annual throughput per tank = 655,932 gal/yr

**Total Loss ( $L_t$ ) = Working Loss ( $L_w$ ) + Standing Loss ( $L_s$ )**

Working Loss ( $L_w$ ) =  $f * Q$

where:

$f$  = Small tank filling loss factor (lb/gal)

$Q$  = Annual throughput in 1,000 gals (656 Mgal/yr)

$L_w = 0.214 \times 656 = 140.4$  lb/yr

Standing Loss ( $L_s$ ) =  $(a * H * D^2) / [1 + (b * H)]$

where:

$a, b$  = Small tank filling loss factor (lb/gal)  $a = 0.0081, b = 0.00213$

$H$  = Tank height (10.92 ft)

$D$  = Tank diameter (9.92 ft)

$L_s = (0.0081 * 10.92 * 9.92^2) / [1 + (0.0023 * 10.92)] = 8.49$  lb/yr

Total Loss per tank =  $140.4 + 8.49 = 148.9$  lb/yr

Daily total loss per tank = 0.41 lb/day

Hourly total loss per tank = 0.03 lb/hr

There are no changes in emissions from the RTO (A/N 554835), Mixer PCBM2 (A/N 556160) and silos S1, S2 and S3 (A/N 554841, 556161 & 556162) due to this project, therefore emissions will be carried forward from previous evaluations.

**Emission Increase Summary (lb/day) 30-day ave**

A/N	ROG	PM <sub>10</sub>
554835 (RTO), modif	-	-
554836 (PCBM3), new	10.97	0.18
554837 (PCBM4), new	122.14	0.11
554839 (Weigh hopper), new	-	0.006
554841 (Silo S1), modif	-	-
554842 (Silo 3), new	-	0.38
554843 (Silo 5), new	-	3.0E-05
554846 (Silo 1), modif	-	0.16
554847 (Silo 2), modif	-	0.16
554848 (Silo 4), modif	-	0.16
554849 (Resin Tank), new	0.41	-
554850 (Resin Tank), new	0.41	-
556160 (PCBM2), C/C	-	-
556161 (Silo S3), modif	-	-
556162 (Silo S2), modif	-	-
<b>Total Emission Increase</b>	<b>133.93*</b>	<b>1.156</b>

\*Part of VOC facility bubble – existing facility VOC cap = 5133 lb/mo

## **RISK ASSESSMENT/ODOR ANALYSIS:**

A health risk assessment is required due to the toxic air contaminant emissions (styrene) that are generated from the resin that is mixed in the mixers and used in the molding operation. The assessment was performed using the Rule 1401 Screening Risk Assessment computer program. The assessment was based on the maximum potential of 133.93 lb styrene/day, a residential receptor distance of 450 meters and an off-site worker receptor distance of 25 meters. The acute and chronic hazard risks are below the threshold limit of 1. The proposed project will not cause a health hazard risk and compliance is expected. See A/N 554835 for spreadsheets.

An odor threshold analysis was additionally performed for styrene emissions. Using a Screen3 modeling computer program, one-hour concentrations were obtained for the residential and commercial receptors. The maximum ground level concentrations are  $5.61 \mu\text{g}/\text{m}^3$  (residential, 25 meters) and  $44.23 \mu\text{g}/\text{m}^3$  (commercial, 450 meters). The one-hour concentrations were converted to ten minute concentrations by multiplying the one-hour concentrations by a factor of 2.3. At both receptors, the modeled concentrations (0.00213 ppm residential and 0.0168 ppm commercial) were below the odor threshold for styrene (0.047 ppm). Odors are not expected in the surrounding area and compliance is expected. See A/N 554835 for spreadsheets and odor threshold analysis.

## **RULE ANALYSIS**

RULE 212 (c)(1): This section requires a public notice for all new or modified permit units that emit air contaminants located within 1,000 feet from the outer boundary of a school. The facility is not located within 1,000 feet of the outer boundary of a school, the closest school (North High School) is 0.7 miles (almost 3700 ft.) away.

Rule 212 (c)(2): This section requires a public notice for all new or modified facilities that have on-site emission increases exceeding any of the daily maximums as specified by Rule 212 (g). The proposed project will not result in an emission increase of VOC from the facility since the facility will operate the equipment under the existing cap of 5,133 lb VOC/month. There will be a slight increase in  $\text{PM}_{10}$  of 1.2 lb/day, well below the 30 lb/day limit in 212(g). A public notice is not required under this section of the rule.

Rule 212 (c)(3): This section requires a public notice for any new or modified permit unit with increases in emissions of toxic air contaminants listed in Table I of Rule 1401 resulting in an MICR equal or greater than one in a million per permit unit or ten in a million per facility. The proposed project will not result in an increase of any carcinogenic compounds. A public notice is not required under this section of the rule.

## APPLICATION PROCESSING AND CALCULATION

Rule 212 (g): This section requires a public notice for all new or modified sources that result in emission increases exceeding any of the daily maximums specified by Rule 212 (g). The maximum potential VOC emissions from the proposed project (mixers, spray booth and molding) is 134 lb/day which will exceed the threshold. A public notice is required per the section of the rule. The following summarizes emissions:

	Maximum Daily Emissions (lb/day)					
	ROG	NO <sub>x</sub>	PM <sub>10</sub>	SO <sub>2</sub>	CO	Pb
Emission increase	134	0	1.2	0	0	0
MAX Limit	<b>30</b>	<b>40</b>	<b>30</b>	<b>60</b>	<b>220</b>	<b>3</b>
Notice Required?	Yes	No	No	No	No	No

RULES 401 & 402: Three odor complaints have been filed against this facility since November 2004, the last in September 2006. These complaints occurred before the facility modified the APC system to include the RTO, and since then there have been no odor complaints. An odor threshold analysis was performed using the maximum styrene emissions from this project for both the residential and commercial receptors and the odor thresholds were not exceeded at both receptors. Particulate emission sources (silos, mixers and weigh hopper) in this project are all vented to either a bin vent or baghouse. Odor or visible emission complaints are not expected.

## RULE 404:

A/N 554838 (Baghouse venting PCBM3 and 4):

$$\text{Concentration} = \frac{(0.011 + 0.007) \text{ lb/hr} \times 7,000 \text{ gr/lb}}{792 \text{ cfm} \times 60 \text{ min/hr}} = 0.0027 \text{ gr/ft}^3$$

Allowable limit at 800 cfm: 0.196 gr/ft<sup>3</sup>

Compliance is expected.

## RULE 405:

A/N 554841 (Bin vent w/o fan venting weigh hopper):

Process weight = 26,006 lb/hr

PM<sub>10</sub> R2 = 0.0003 lb/hr

Allowable discharge rate @ 26,006 lb/hr process weight = 12.4 lb/hr PM<sub>10</sub>

Compliance is expected.

A/N 554844 (Bin vent w/o fan venting silo 3):

Process weight = 10,213 lb/hr

R2 = 0.051 lb/hr

Allowable discharge rate @ 10,213 lb/hr process weight = 8.62 lb/hr PM<sub>10</sub>

Compliance is expected.

**APPLICATION PROCESSING AND CALCULATION**

A/N 554845 (Bin vent w/o fan venting silo 5):

Process weight = 110 lb/hr

R2 = 0.00055 lb/hr

Allowable discharge rate @ 110 lb/hr process weight = 0.99 lb/hr PM<sub>10</sub>

Compliance is expected.

RULE 1147: The burner of the RTO was source tested at 55 ppmv @ 3% O<sub>2</sub> which meets the 60 ppmv limit of this rule. Compliance is achieved.

RULE 1155 (A/N 554835, 554841, 554842, 554843, 556161 & 556162): The baghouse, bin vents and cartridge filters all have total filter areas less than 500 ft<sup>2</sup> and hence, are considered Tier 1. New Basis plans to operate and maintain all devices in accordance with manufacturer's specifications, visible emissions are not expected. None of these devices have manual shakers. Collected dust will be discharged into closed containers. The new mixers will be vented to a new baghouse and the new silos vented directly to bin vents. These are enclosed systems so the ventilation system is expected to meet the Industrial Ventilation standards. The baghouse and bin vents have either pulse jet or reverse air cleaning and mechanical shakers. The bin vents for the weigh hopper (554839), silos 1, 2 & 4 (554846-848) have total filter areas less than 100 ft<sup>2</sup> so are exempt from this rule per (g)(1) except for (d)(1) requirements for no visible emissions. Compliance is expected.

RULE 1303(a): PCBM3 and 4 will be vented to a new baghouse and an existing RTO which are BACT for controlling PM<sub>10</sub> and VOC emissions. The silos and weigh hopper are all vented to bin vents or cartridge filters. BACT requirements are met. VOC emissions from the resin storage tanks are less than 1 lb/day so BACT is not triggered.

RULE 1303(b)(1): Hourly PM<sub>10</sub> emission increases from the mixers, silos and weigh hopper are less than 0.41 lb/hr in Table A-1 for non-combustion sources so additional modeling is not required. There are no increases in PM<sub>10</sub>, CO or NO<sub>x</sub> from the other equipment. Modeling is not required for VOC.

A/N	PM <sub>10</sub> (lb/hr)
554836 (PCBM3)	0.011
554837 (PCBM4)	0.007
554839 (Weigh hopper)	0.00038
554842 (Silo 3)	0.035
554843 (Silo 5)	3.4E-06
554846 (Silo 1)	0.01
554847 (Silo 2)	0.01
554848 (Silo 4)	0.01

**APPLICATION PROCESSING AND CALCULATION**

RULE 1303(b)(2): VOC emissions from the mixers and molding will not cause an increase above the existing facility VOC cap, offsets are not required. The PM<sub>10</sub> emission increase is 1.2 lb/day. The increase is exempt from offsets per Rule 1304 (d) since facility PM<sub>10</sub> emissions are less than 4 ton/yr.

RULE 1303(b)(4)/(b)(5): The facility is expected to be in full compliance with all applicable rules and regulations of the District.

RULE 1401: Compliance is expected, see RISK ASSESSMENT section of this report. Only styrene, an acute & chronic TAC will be emitted from this project, and both HIA (0.145) and HIC (0.233) are below 1.

**40CFR 63, Subpart WWWW:** This subpart establishes national emissions standards for hazardous air pollutants (NESHAP) for reinforced plastic composites production, and establishes requirements to demonstrate initial and continuous compliance with the hazardous air pollutants (HAP) emissions standards. Facilities subject to this subpart are required to determine HAP emissions using appropriate emission factors, comply with all applicable work practice standards, conduct all necessary performance tests and monitor and collect all required data. New Basis performs open and closed molding. They are expected to operate the open molding processes in compliance with this subpart. Closed molding is exempt from the requirements of this subpart under 63.5790(c). HAP emissions from the open molding associated with this proposed project are below the specific emission limit of Table 3.

**PCBM3:**

Max. Emissions = 11 lb/day

Max. Resin throughput = 64,500 lb/day \* 1 ton/2,000 lb = 32.25 ton/day

Lb/ton = 11 lb/day ÷ 32.25 ton/day = 0.34 lb/ton

**PCBM4:**

Max. Emissions = 122 lb/day

Max. Resin throughput = 49,450 lb/day \* 1 ton/2,000 lb = 24.73 ton/day

Lb/ton = 122 lb/day ÷ 24.73 ton/day = 4.93 lb/ton

Total = 0.34 + 4.93 = 5.27 lb/ton

Process	Application Type	HAP Emission Limit (lb/ton)	Estimated HAP Emissions (lb/ton)
Open molding ( non corrosion resistant or high-strength)	Mechanical	88	<u>0.34 - 5.27</u>



**REGULATION XXX:**

This facility is not in the RECLAIM program. The proposed project is considered as a “significant permit revision” for non-RECLAIM pollutants or hazardous air pollutants (HAPs). Rule 3000(b)(31) specifies that a “significant permit revision” includes, but is not limited to any of the following:

- Rule 3000(b)(31)(B) – the addition of equipment or modification to existing equipment or processes that result in an emission increase of non-RECLAIM pollutants or hazardous air pollutants (HAPs) from all de minimis significant permit revisions in excess of any of the emission threshold levels in Table 1 of Rule 3000(b)(7).
- Rule 3000(b)(31)(C) - cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAPs) from all de minimis significant permit revisions during the term of the permit in excess of any of the emission threshold levels in Table 1 of Rule 3000(b)(7).

<b>Air Contaminant</b>	<b>Daily Maximum (lb/day)</b>
HAP	30
VOC	30
NO <sub>x</sub>	40
PM <sub>10</sub>	30
SO <sub>x</sub>	60
CO	220

- Rule 3000(b)(31)(I) – installation of new equipment subject to a New Source Performance Standard (NSPS) pursuant to 40 CFR Part 60, or a National Emission Standard for Hazardous Air Pollutants (NESHAP) pursuant to 40 CFR Part 61 or 40 CFR Part 63.

To determine if a project is considered as a “significant permit revision” for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is the third permit revision to the Title V renewal permit issued to this facility on November 29, 2011. The following table summarizes the cumulative emission increases resulting from all permit revisions since the Title V renewal permit was issued:

**APPLICATION PROCESSING AND CALCULATION****New Basis Reg. XXX Revision Summary since TV renewal on 11/29/2011:**

<b>Revision</b>	<b>HAP</b>	<b>VOC</b>	<b>NOx</b>	<b>PM<sub>10</sub></b>	<b>SOx</b>	<b>CO</b>
1 <sup>st</sup> Permit Revision: Add three silos and one baghouse	0	0	0	0.66	0	0
2 <sup>nd</sup> Permit Revision: Convert P/Cs for RTO and PCBM1 to P/Os	0	0	0	0	0	0
3 <sup>rd</sup> Permit Revision: Add two mixers, two silos, two storage tanks, one weigh hopper, and modify an RTO and six silos, and update conditions for a mixer	0	0	0	1.2	0	0
Net Emission Total	0	0	0	1.86	0	0
Maximum Daily	30	30	40	30	60	220

Since the proposed project is subject to 40 CFR63, Subpart WWWW it is considered as a “significant permit revision” for non-RECLAIM pollutants or HAP based on the definition in Rule 3000(b)(31)(I).

**RECOMMENDATION:**

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “significant permit revision”, all public participation procedures under Rule 3006 (a) will be followed prior to the issuance of the permit. A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not raise any objections within the review period, and upon completion of the Rule 212(g) and 3006 public notice period, a revised Title V permit will be issued to this facility with Permits to Operate for A/Ns 554841 (Storage Silo S1), 556160 (PCBM2), 556161 (Storage Silo S3) and 556162 (Storage Silo S2), and Permits to Construct for the remaining applications. A/Ns 554838, 554844 and 554845 for the baghouse (venting mixers PCBM3 and 4), and bin vents (venting Silos 3 and 5) will be canceled since the baghouse will be included with the APC system permit and the bin vents will be included with the respective Silo permits.